

REMARKS

The applicants have canceled claims 1-15 without prejudice and have added new claims 31-43. Claims 16-43 are now pending in the application. The new claims 31-43 find support in various parts of the specification, for example, in claims 2-15, as originally filed. The applicants have amended the Brief Description of the Drawings in the specification at page 5, line 3 in preparation for adding the non-tubular inner member embodiment description of Figs. 3 and 4 at page 5, line 9. Also, the specification has been amended at page 9, line 23 by changing the item reference number of the non-tubular inner member from 14 to 14', which is seen in new Figs. 3 and 4. Also, the temperature sensors 13a, 13b and the flow switch 15, along with their respective associated conduction means 17a, 17b, and 19, have been added so as to properly identify each of those items in amended Fig. 1. No new matter has been introduced by these amendments. Favorable consideration of this application is respectfully requested in light of the above amendments and the following detailed discussion.

Drawings Objections

The Examiner has objected to the drawings under 37 C.F.R. 1.83(a), wherein the drawings must show every feature of the invention specified in the claims. The Examiner asserts that the non-tubular inner member of claim 27, the temperature sensors of claims 28 and 29, and

Appl. No. 10/695,702
Amdt. Dated September 29, 2004
Reply to Office Action of July 23, 2004

the flow switch of claim 30 must be shown or the features(s) canceled from the claim(s). No new matter should be entered.

The Examiner asserts that corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

In response to these objections, the applicants have amended Fig. 1 to include the temperature sensors 13a and 13b, respectively, of claims 28 and 29, and the flow switch 15 of claim 30. These amendments find support, for example, at page 10, lines 7-13, as originally filed. In addition, the applicants have added Figs. 3 and 4 to show the non-tubular inner member

Appl. No. 10/695,702
Amdt. Dated September 29, 2004
Reply to Office Action of July 23, 2004

14', which find support, for example, at page 9, line 23 to page 10, line 6, as originally filed.

Thus, no new matter has been added.

Claim Rejections – 35 U.S.C. § 102

The Examiner has rejected claims 1-7, 10, 14, and 15 under 35 U.S.C. § 102(e) as being anticipated by Cooper et al. (U.S. Patent No. 6,376,816, hereinafter Cooper). The Examiner asserts that Cooper discloses a heating element comprising a glass quartz tube member having a surface, and a void defined through the member, the void being adapted to allow a fluid to pass through the member; a conductive coating disposed on at least a portion of the surface of the member; and at least two electrical connections disposed onto and in electrical contact with the conductive coating, thus forming at least one heating section; wherein when electrical power is applied to the connections, heat is generated by the coating and transferred to the fluid passing through the void, wherein the coating comprises tin oxide, wherein the coating is disposed onto the major surface utilizing a rotating fixture, wherein each connection comprises a conductive metal bus bar, wherein the heat generated is directly proportional to the number of approximately equal resistance heating sections defined thereon.

Since claims 1-7, 10, 14, and 15 have been canceled, these rejections are moot.

Claim Rejections – 35 U.S.C. § 103

1. The Examiner has rejected claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Cooper. The Examiner asserts that Cooper discloses the claimed invention except the nominal sheet resistance of about 25 Ohms/square. The Examiner further asserts that it would have been obvious to one of ordinary skill in the art to [?] since such a modification would have involved a mere change in the size of a component, in this case the thickness of the coating. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Since claim 8 has been canceled, this rejection is moot.

2. The Examiner has rejected claim 9 under 35 U.S.C. § 103(a) as being unpatentable over Cooper in view of Szupillo (U.S. Patent No. 4,180,723, hereinafter Szupillo). The Examiner asserts that Cooper discloses the claimed invention except the compression fitting connection. Szupillo discloses a heated tube using compression fittings. The Examiner further asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made, in view of Szupillo, to modify the device of Cooper to use the common compression fitting since it was a well known method of connecting power to heated tubes.

Since claim 9 has been canceled, this rejection is moot.

3. The Examiner has rejected claims 11-13 under 35 U.S.C. § 103(a) as being unpatentable over Cooper in view of Heyroth (U.S. Patent No. 2,022,314, hereinafter Heyroth).

Appl. No. 10/695,702
Amdt. Dated September 29, 2004
Reply to Office Action of July 23, 2004

Cooper discloses the claimed invention except the composition of the metal bus bar and the method of making. Heyroth discloses making electrical connections for heated tubes by spraying copper or conductive metal. The Examiner further asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made since it was a known method of making electrical connections to heated tubes.

Since claims 11-13 have been canceled, these rejections are moot.

Allowable Subject Matter

The Examiner has allowed claims 16-30, stating that the prior art of record does not teach in combination with all other limitations of the independent claim, a heater assembly having the claimed inner member positioned through a void in the end cap and mechanically attached to the end cap.

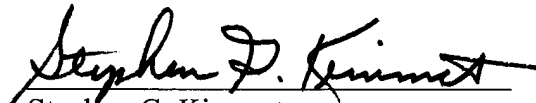
The applicants are most appreciative of the Examiner's allowance of claims 16-30. In addition, the applicants have added new claims 31-43, which depend directly or indirectly from the allowed independent claim 16, and thus include all of the limitations thereof. The applicants, therefore, respectfully submit that claims 31-43 are also patentable. Accordingly, consideration of the claims 31-43 is respectfully requested.

Appl. No. 10/695,702
Amdt. Dated September 29, 2004
Reply to Office Action of July 23, 2004

CONCLUSION

If the Examiner has any remaining questions or concerns, or would prefer claim language different from that included herein, the favor of a telephone call to the applicants' attorneys is requested.

Respectfully submitted,


Stephen G. Kimmet
Registration No. 52,488

ATTORNEYS

Marshall & Melhorn, LLC
Four SeaGate – 8th Floor
Toledo, Ohio 43604
Phone: (419) 249-7132
Fax: (419) 249-7151

Appl. No. 10/695,702
Amdt. Dated September 29, 2004
Reply to Office Action of July 23, 2004

Amendments to the Drawings:

The attached sheets of drawings include changes to Fig. 1, which adds a temperature sensor 13a with its associated conduction means 17a in the fluid stream, a temperature sensor 13b with its associated conduction means 17b that is attached to a wall of the outer quartz glass tube 12, and a flow switch 15 with its associated conduction means 19 in the fluid flow. Also, Figs. 3 and 4 have been added to show a non-tubular inner member 14' embodiment.

Attachments: Replacement Sheet for Figs. 1 and 2, and a New Sheet for Figs. 3 and 4.

Annotated Sheet Showing Changes to Fig. 1.

